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Implementation of Cashless Technology in the Fatahillah Canteen Payment System at Darunnajah Islamic Boarding School

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Abstract− In the era of globalization, non-cash payment technology is increasingly commonly used, including in Indonesia. Because this system facilitates transaction speed and can increase the efficiency of financial management for users, one of which is in the Islamic boarding school environment. This research discusses the implementation of the Cashless payment system in the Fatahillah canteen at the Darunnajah Islamic boarding school, Jakarta. This research was conducted using data collection methods to understand the perceptions and experiences of users and students regarding the use of the Cashless system. Data was collected through interviews, observation and analysis of the system used. From the data collected, research results show that the Cashless system increases the efficiency and security of transactions, makes it easier to manage students' finances, and reduces the risk of losing money. The implementation of RFID technology in Cashless payment cards also allows integration with various Islamic boarding school services, and makes the system safer and more practical.

Keywords: Cashless; Payment; System; Technology; Transaction

1. INTRODUCTION

In this era of globalization, technological progress is developing very rapidly, encouraging many countries to compete to improve their technology. As a result, various sectors experienced significant changes, including the financial sector. For example, card-based and other cashless payment technologies are now widely used as fast payment methods, replacing direct cash transactions.

Card-based payment methods, such as credit cards, debit cards, ATMs, prepaid cards, e-banking, e-tolls, and even applications, are now commonly used by the public for non-cash transactions (Ansori, 2021). In Indonesia, electronic money (cashless) was first introduced in April 2007 and has provided benefits for Indonesian citizens and Bank Indonesia. The main feature of cashless payments is the ease and speed of transactions, which has been a problem in handling cash (Husnayetti et al., 2020).

The advantage of electronic money makes it easier for SMEs to have no trouble finding change or providing petty cash to customers, and customers do not need to carry a lot of currency when shopping (Dewiningrat, 2022). That way, financial management in an SME will also be more efficient and can reduce invalid financial data in a business unit (Yadnya, 2022). In addition, the use of electronic money can increase transaction transparency and facilitate real-time financial recording, so that SMEs can better monitor cash flow and make more informed business decisions (Salim & Rakhmawati, 2023).

Thus, many business units are switching from cash to non-cash (cashless) transactions. The Darunnajah Islamic Boarding School in Jakarta has also changed its student payment system to cashless (card) (Mubarak et al., 2022). In this research, researchers will examine the payment (transaction) system for the Fatahillah canteen at the Darunnajah Islamic Boarding School Jakarta.

Payment refers to the transfer of funds from the sender to the recipient. Digital payments, on the other hand, are payment methods that utilize technology to facilitate this process, allowing transactions to be carried out electronically without the need for physical cash(Mukhtar et al., 2022). That way, students will be more practical in managing finances and there will be minimal loss of money or theft.

Cashless is a term used to describe financial transactions that no longer use cash (whether in the form of metal or paper) (Fauzi et al., 2022). Cashless payments are all financial transactions carried out without involving currency such as demand deposits and checks, but using electronic means such as transactions via Automated Teller Machines (ATM), debit cards, credit cards, as well as transactions that use high technology such as e-banking, e- commerce, or e-payment (Akbar et al., 2019).

Cashless or non-cash payment is a payment system without cash, according to the literal meaning which means no or no use of cash. Non-cash payments are a new step issued by Bank Indonesia as an alternative form of payment other than cash payments (Anggatanata et al., 2020). Since November 2021, Darunnajah Islamic Boarding School has launched a cashless system for students using cards. The aim is none other than to reduce the use of cash which can be an intermediary for the spread of the Covid-19 virus, then to reduce the risk of losing money in Darunnajah, and also increase money circulation (Anwar et al., 2023).

Instead, students are given a card which functions as a KTS (Student Identification Card) and also as RFID (Radio Frequency Identification). RFID is a wireless technology that is very useful for industry, especially business or e-commerce (Febrilia et al., 2020). This technology uses chips or tags that can be attached or embedded in an item. In short,

this card is like an ATM card. This card is both an identity and a tool for paying for all their needs, for example: washing clothes at the laundry, snacks at the canteen, buying soap at the cooperative, and other transaction needs (Pratama et al., 2022).

This payment card is connected to the Santri Children's Savings (TAS). So, the balance filled in on this payment card is the balance from the Santri Children's Savings (TAS) (Hadisman & Uddin, 2024). So, the guardians of the students don't need to bother sending money through packages or anything else because it can be transferred to TAS and the money sent can be used directly by the students using the payment card to buy daily necessities at the DN Store, canteen, telephone shop, laundry, and other Darunnajah Islamic boarding school business facilities (Rahardja et al., 2019).

With the Cashless system implemented by Darunnajah Islamic Boarding School, it can increase the efficiency of students' financial security (Panggabean et al., 2023). It is also easier for students to record their monthly outgoings. Thus, the Cashless payment system not only provides convenience, but also teaches good financial values to students (Rahma et al., 2022).

Although there are still several factors that cause parents to not really understand and comprehend the Cashless system, one of which is that they still don't really understand the world of digitalization (Chumaidi, 2022)

Therefore, the researcher wants to describe the design of the Cashless (card) system used by the students of the Darunnajah Islamic Boarding School to carry out transactions when they want to buy snacks or food in the Fathahillah canteen of the Darunnajah Islamic Boarding School (Yuliati & Handayani, 2021).

2. RESEARCH METHODOLOGY

This system is expected to increase efficiency and security in the transaction process in the canteen, so that it is easier for students to manage their finances. Therefore, direct observation of the system and the students is needed so that the method used by the author is a data collection method that allows the author to gain an in-depth understanding of the experiences and perceptions of the students regarding the use of the Cashless system (Sunarjo et al., 2023)

a. Problem analysis

So far, the students have carried out transactions in accordance with purchasing transactions or paid services by coming to the place with a cash payment process.

b. Data collection

Data collection is the initial stage which is used as input to obtain data. In data collection, methods for collecting data in research are carried out, namely by interviews, observation, and seeing directly how the system works. as well as direct interviews with related parties such as students and canteen sellers or laundry service staff and others.

2.1. Running System Analysis

Currently the system used is still a manual system where students carry out transactions by coming to the transaction location and paying for the transaction with cash.

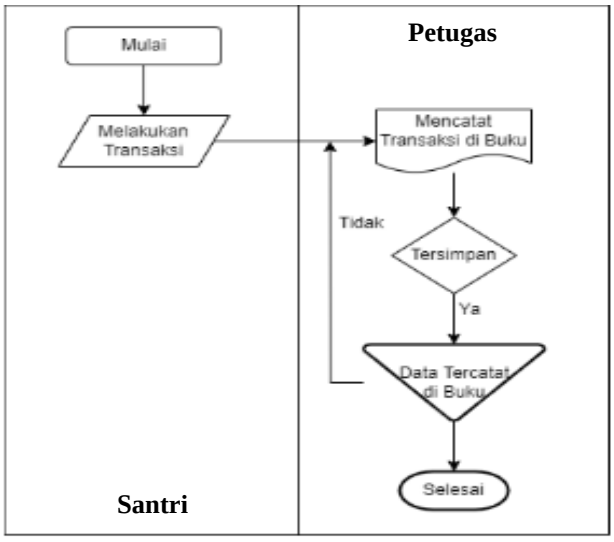

Figure 1. Running System

Figure 1 shows the current process or system that is still used to carry out a transaction where payments are still made using cash.

2.2. Use Case Diagram

The Use Case Diagram shows how admins, namely officers and users as students, carry out actions involving an activity.

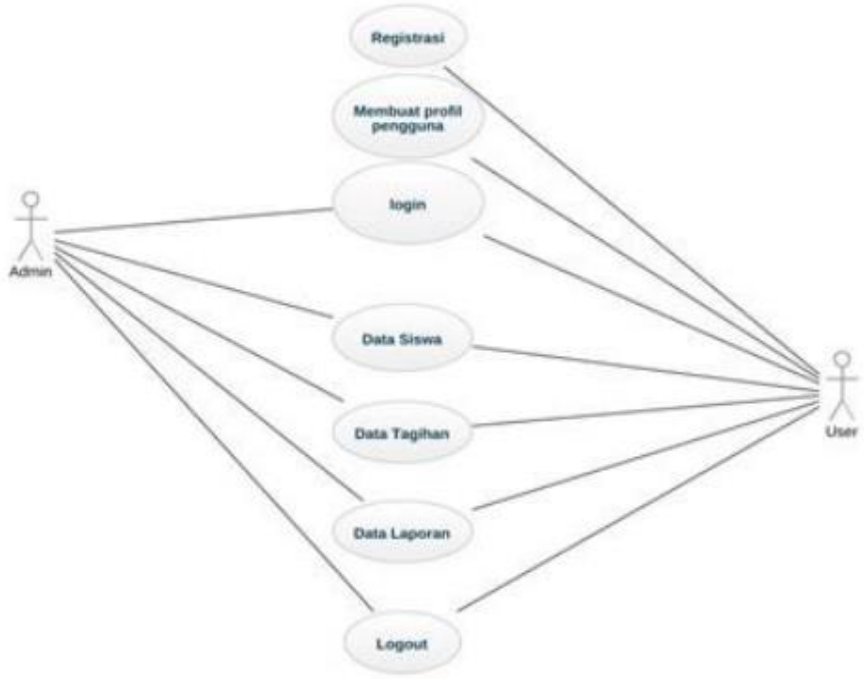

Figure 2. Use Case Diagram

Figure 2 shows several activities carried out by admins, namely officers and users as students, which are more or less the same in carrying out activities.

3. RESULT AND DISCUSSION

Cahsless Payment makes transactions very easy and provides a sense of security for students and comfort for students' parents. Because through Cashless payment, both students and parents no longer need to worry about financial problems because they have a safe payment system and no longer need to pay using cash.

3.1 Implementation

Contains the results of application implementation or program results (which are important only), or results from method testing.

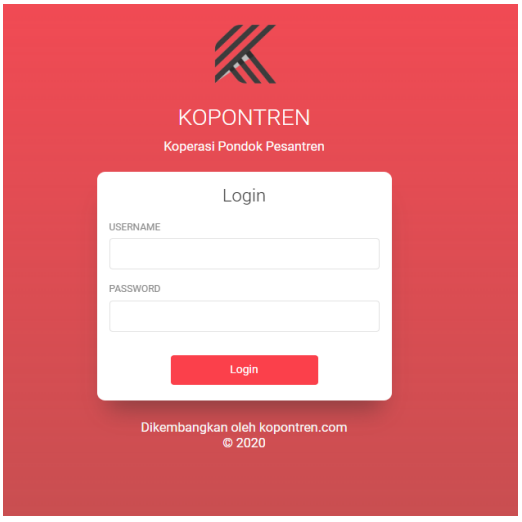

Figure 3. Login Menu Display

In Figure 3, in the login display, there are two components that must be filled in, namely Username and Password. Once they are valid, the display will move to the dashboard.

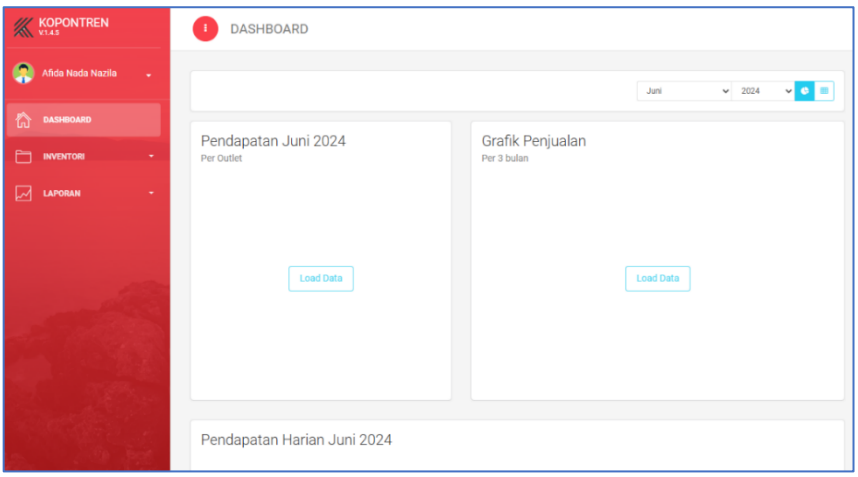

Figure 4. Dashboard Menu Display

In Figure 4, This Dashboard display contains Monthly, Daily income and also sales graphs. So, when the goods have been input and a transaction is made at the cashier, the income from the goods sold will appear in this display.

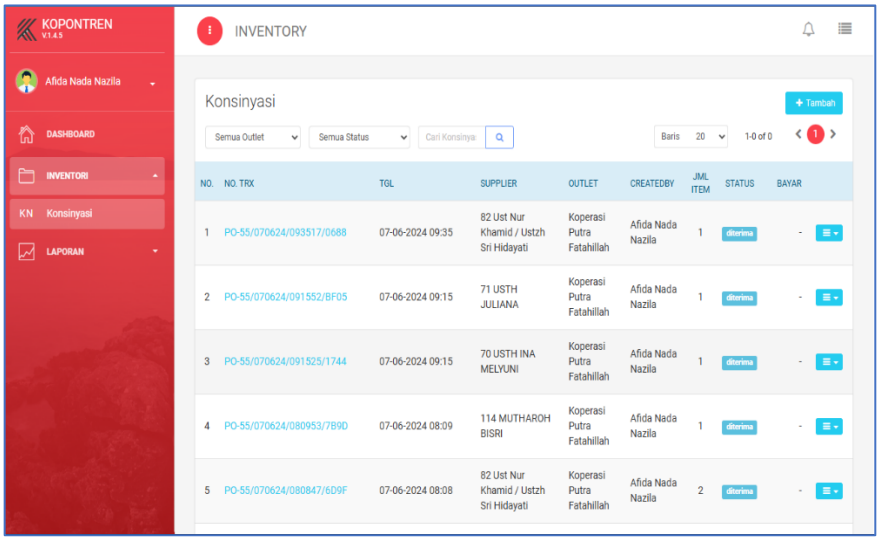

Figure 5. Inventory Menu Display

In Figure 5, This Inventory display is a display of the consignment inventory which contains data on goods that have come in and gone out. This display contains components that explain when the goods arrived and the status that they have been received.

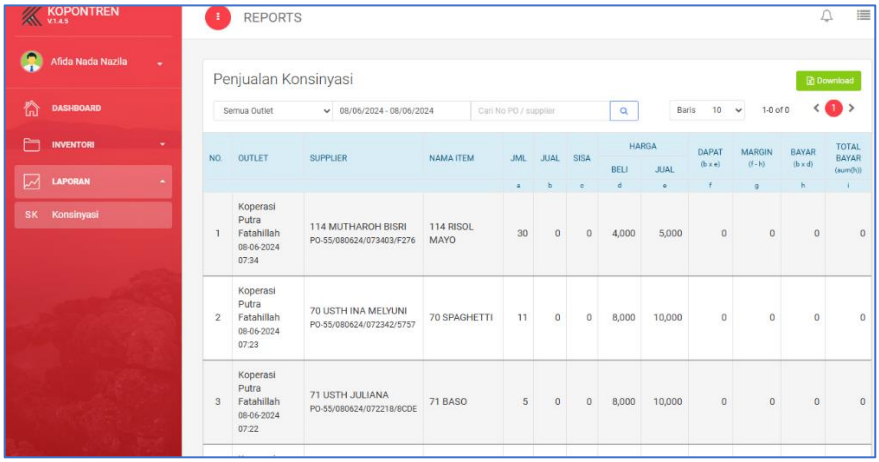

Figure 6. Report Menu Display

In Figure 6, The Reports view contains supplier reports and the number of items sold. In this configuration report there is incoming data and outgoing data. Starting from the item name, quantity, and remaining unsold items.

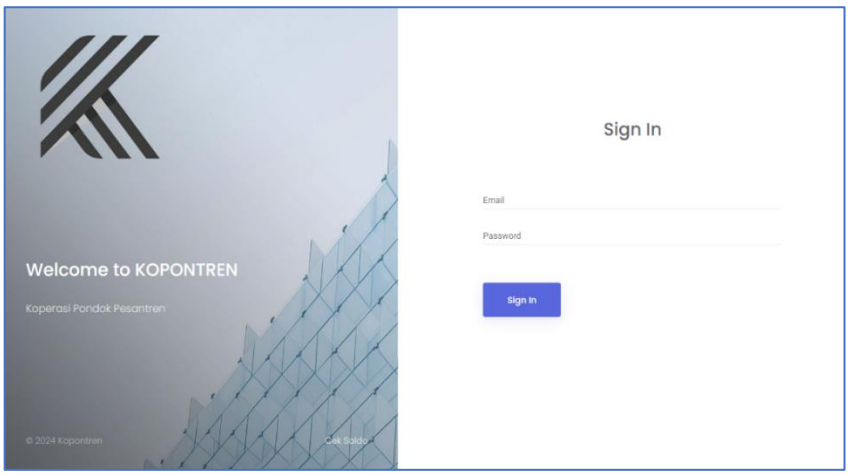

Figure 7. Cashier Login Display

In Figure 7, The Cashier Login display has components that must be filled in, namely Email and Password, then if the Email and Password are valid then the system will switch to the menu display.

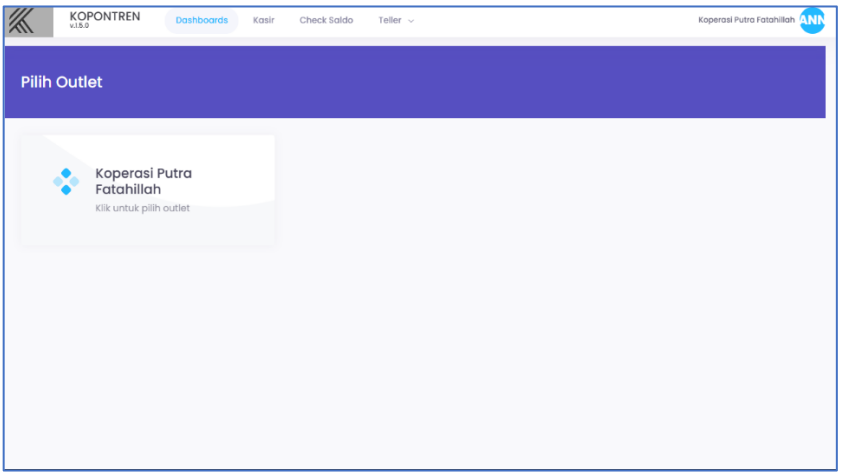

Figure 8. Cashier Dashboard Display

In Figure 8, Dashboard display, there are four main menus available at the Kopontren cashier, namely: Dashboard, Cashier, Check Balance, and Teller. This is the initial display after entering the account into the cashier.

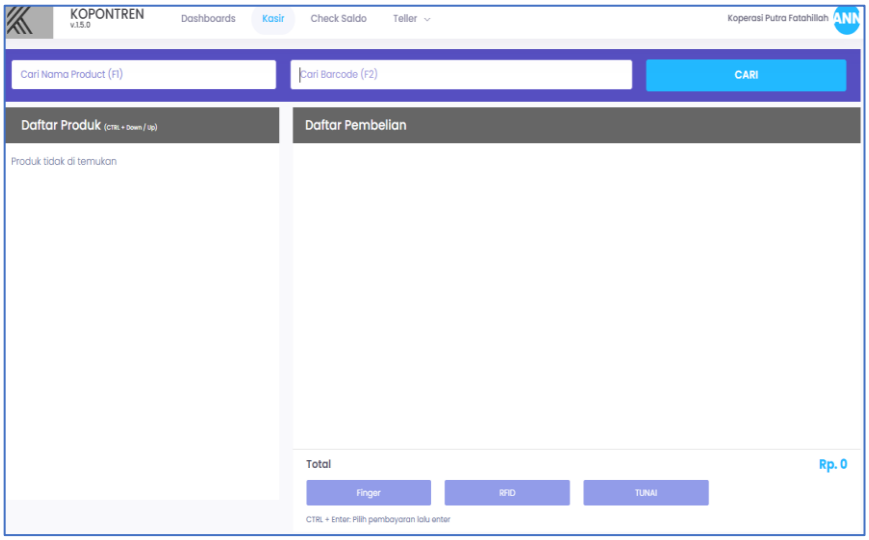

Figure 9. Cashier Display

In Figure 9, Cashier display, in this display students make payment transactions for each item to be purchased. For each product to be sold, a barcode is created, so the cashier scans the code and data on the product to be purchased will be entered. However, if the barcode is invalid, the cashier can input product data by typing the product name. After the data has been entered, the student will make a payment using the RFID menu, and then tap Card (Cashless) and the transaction is successful.

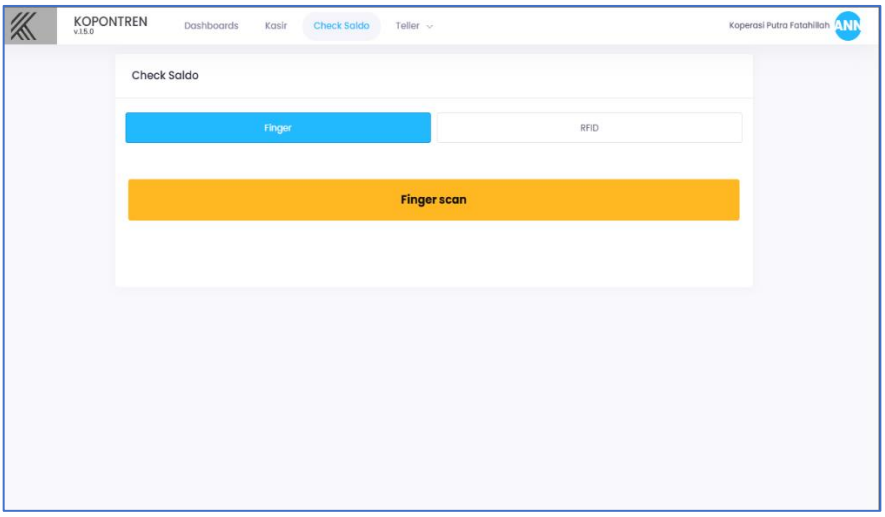

Figure 10. Balance Check Display

In Figure 10, Check Balance Display, in this display, students can first check the balance on their (Cashless) card before purchasing. The balance value will appear after they attach the card to the sensor device then the balance value will appear.

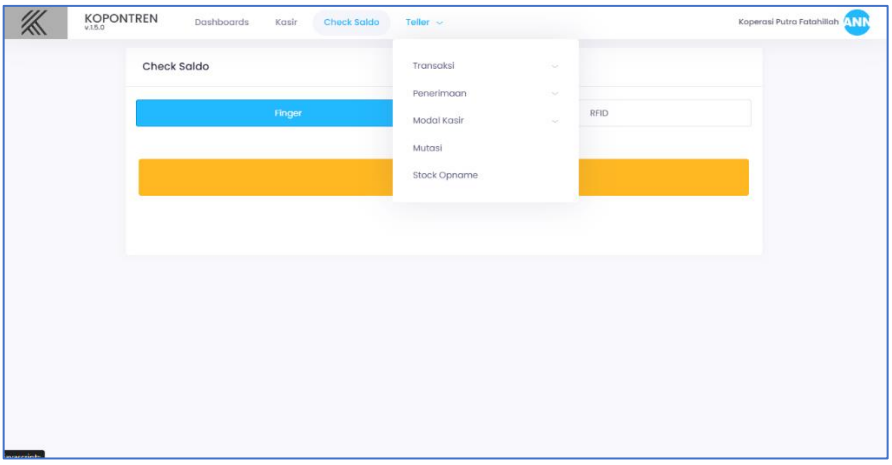

Figure 11. Teller Menu Display

In Figure 11, There are several components contained in the Teller display, namely: Transactions, Receipts, Cashier Capital, Movements and Stock Taking.

3.2 Testing

This testing process must be carried out so that the resulting system meets standards and reduces the possibility of bugs or errors occurring before implementation The method used is Black Box testing. Black Box testing is a type of testing that does not pay attention to the internal logical structure of the software. This method is used to determine whether the software is functioning properly.

Table 1. Black Box Testing

Test Description	Test Field	Results
Login to the system using the admin account	Functional Testing	Succeed
Input student data into the system database	Functional Testing	Succeed
Make food purchase transactions in the canteen using a Cashless card	Functional Testing	Succeed
Check the Cashless card balance before making a transaction	Functional Testing	Succeed
Print monthly canteen transaction reports	Functional Testing	Succeed

Table 1 With this black box testing, we know that the system we created is successful because the field test results produce system output that is declared successful.

4. CONCLUSION

This research succeeded in creating a system as well as user perceptions and experiences, namely Darunnajah students, regarding the use of this Cashless payment system through data collection as well as modeling and implementing the system. The cashless system has been proven to increase transaction efficiency in the canteen, reduce the time required for each payment compared to the cash method, and increase transaction security by reducing the risk of losing money for students. In addition, this system makes financial management easier because all transactions are recorded automatically, providing greater transparency in monitoring cash flow and daily expenses. The implementation of RFID technology on payment cards allows integration with various Islamic boarding school services, making the system more practical and secure.

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